

REMARKS

Claims 16 – 30 are currently pending in the application. No claims have been amended with the present response. The Figure has been amended to add a reference numeral for the pressure chamber and to add a labeled representation of the separation device. The specification has been amended to correct a minor typographical error and to provide support for the amended Figure. Applicants submit that no new matter is added by the above amendment. Support for the amendment may be found, for example, at least in original paragraph [0020] and previously presented claim 22 and original claims 7 and 9. Reconsideration of the rejected claims in view of the below remarks is respectfully requested.

Interview Summary

Applicants would like to take this opportunity to thank Examiner Fuller and Primary Examiner Thompson for their courtesy in scheduling and conducting the telephonic interview of November 25, 2008, as well as their constructive, cooperative and helpful suggestions made during the above interview. In the interview, Applicants' representative discussed the outstanding prior art rejections and the applied prior art. More specifically, Applicants' representative discussed the anticipation rejections and explained why the applied references are believed to not disclose each of the features of the present invention. Additionally, Applicants' representative discussed the features of dependent claim 18 and the possible incorporation of the features of claim 18 into the independent claim.

Further, Applicants' representative discussed the separation of the gas phase and the liquid phase that occurs in the displacement pump. Applicants' representative pointed to the cited European Patent Publication in paragraph [0002] of the instant specification, which is

incorporated into the instant specification in its entirety, for a further description of the separation of the gas phase and the liquid phase that occurs in the displacement pump.

Objection to the Drawings

The Examiner has objected to the drawings for failing to show “the pressure chamber and the separation device which is provided within the displacement pump housing (see claim 22).” Applicants respectfully submit that one of ordinary skill in the art, upon reading the instant specification, would readily understand the present invention. Additionally, Applicants respectfully note that displacement pumps and multi-phase pumps, including their pressure chambers and housings, and how they are operable to separate are well-known in the art. Furthermore, Applicants note that the cited European Patent Publication in paragraph [0002] of the instant specification, which is incorporated into the instant specification in its entirety, describes the separation of the gas phase and the liquid phase that occurs in the displacement pump.

In any event, Applicants submit herewith an amended Figure 1, which shows the recited pressure chamber and the separation device which is provided within the displacement pump housing. Applicants respectfully submit that a detailed illustration is not essential for a proper understanding of the invention. As such, Applicants respectfully submit that the labeled representations of the pressure chamber and the separation device are sufficient.

Accordingly, for the above reasons, Applicants respectfully request the objection to the drawings be withdrawn.

35 U.S.C. §102 Rejections

Claims 16 – 18 were rejected under 35 U.S.C. §102(e) for being anticipated by U. S. Patent No. 7,093,665 issued to Dass (“Dass”). Claims 16 and 17 were rejected under 35 U.S.C. §102(b) for being anticipated by U. S. Patent No. 3,709,292 issued to Palmour (“Palmour”). These rejections are respectfully traversed.

To anticipate a claim, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. MPEP § 2131. Applicants submit that neither Dass nor Palmour disclose each of the features of the present invention.

Independent Claim 16 over Dass

The present invention relates to a method for delivering a multi-phase mixture. Claim 16 recites, in pertinent part:

. . . using a displacement pump through which the multi-phase mixture is pumped, comprising, on a pressure side, splitting off a partial liquid flow from a main delivery flow and guiding the split partial liquid flow to a high-pressure side of at least one ejector pump arranged on a suction side of the displacement pump as an auxiliary delivery device.

Applicants submit that Dass does not disclose each of the features of claim 16. For example, Applicants submit that Dass does not disclose using a displacement pump through which the multi-phase mixture is pumped, as recited in claim 16. More specifically, Applicants submit that Dass does not disclose the recited displacement pump.

In addressing claim 16, the Examiner asserts that:

Dass discloses a method of using a displacement pump (130) through which the multi-phase mixture is pumped, comprising, on a pressure side, splitting off a partial liquid flow from a main delivery flow and guiding

the split partial liquid flow to a high-pressure side of at least one ejector pump (100) arranged on a suction side of the displacement pump as an auxiliary delivery device (see column 3, lines 49 – 55).

Applicants respectfully disagree.

Dass discloses a method of adapting a downhole multi-phase twin screw pump for use in wells having a high gas content and a downhole multi-phase twin screw pump. More specifically, Dass discloses at column 3, lines 21 – 30: (emphasis added)

Referring to FIG. 3, downhole multi-phase twin screw pump 100, in a combination which includes a housing 112 having an intake end 114, an output end 116, and a fluid flow passage 118 that extends between intake end 114 and output end 116. Twin pumping screws 120 are disposed in fluid flow passage 118. A supplementary liquid channel 122 extends through housing 112 in fluid communication with twin pumping screws 120 near intake end 114 of housing 112. A liquid trap 124 is positioned adjacent a well head 126 of well 128. This differs from first embodiment 10 in which liquid trap 24 was provided within housing 12. As with first embodiment 10, liquid trap 124 of second embodiment 100 also uses an eductor 130 to capture a portion 132 of a liquid stream 134 being moved through well 128 by twin pumping screws 120 and feeds that portion 132 of liquid stream 134 as supplementary liquid 136 through supplementary liquid channel 122 to twin pumping screws 120, thereby enhancing a liquid seal around twin pumping screws 120.

Applicants submit that Dass does not disclose using a displacement pump through which the multi-phase mixture is pumped, as recited in claim 16. In rejecting claim 16, the Examiner designates the eductor 130 of Dass as the recited displacement pump. However, Applicants respectfully submit that an eductor is not a displacement pump. As understood by one ordinarily skilled in the art, a displacement pump causes a fluid to move by trapping a fixed amount of it then forcing (displacing) that trapped volume into a discharge pipe.

In contrast to a displacement pump, the eductor 130 is a kinetic pump, which utilizes the kinetic energy of one fluid to cause the flow of another. That is, Applicants respectfully submit

that the eductor 130 is a kinetic pump, as the eductor 130 utilizes the kinetic energy of one fluid to cause the flow of another. As such, Applicants submit that Dass does not disclose a displacement pump.

Additionally, Applicants note that if the twin screw pump 120 of Dass is considered the displacement pump, Dass does not disclose splitting off a partial liquid flow from a main delivery flow and guiding the split partial liquid flow to a high-pressure side of at least one ejector pump. That is, Dass discloses the twin screw pump 120 delivers a complete delivery flow 134 to the eductor. As such, Applicants respectfully submit that no partial liquid flow is sent to a high-pressure side of at least one ejector pump

Thus, for at least these reasons, Applicants respectfully submit that Dass does not disclose each of the features of claim 16, and does not anticipate the present invention.

Dependent claims 17 and 18 over Dass

Claims 17 and 18 are dependent claims, depending from a distinguishable base claim. Accordingly, these claims should also be in condition for allowance at least based upon their dependencies and because they recite additional distinguishing features.

Accordingly, for these reasons, Applicants respectfully request the rejection of claims 16 – 18 over Dass be withdrawn.

Independent claim 16 over Palmour

Applicants submit that Palmour does not disclose each of the features of claim 16. For example, Applicants submit that Palmour does not disclose: 1) using a displacement pump through which the multi-phase mixture is pumped; 2) splitting off a partial liquid flow from a

main delivery flow and guiding the split partial liquid flow to a high-pressure side of at least one ejector pump; and 3) at least one ejector pump arranged on a suction side of the displacement pump, as recited in claim 16.

In addressing claim 16, the Examiner asserts:

Palmour discloses a method for delivering a multi-phase mixture from a well using a displacement pump (28) through which the multi-phase mixture is pumped, comprising, on a pressure side, splitting off a partial liquid flow from a main delivery flow and guiding the split partial liquid flow to a high-pressure side of at least one ejector pump (14) arranged on a suction side of the displacement pump as an auxiliary delivery device.

Applicants respectfully disagree.

Palmour discloses a power fluid conditioning unit. More specifically, Palmour discloses at column 2, lines 11 – 30 that: (emphasis added)

The present invention provides a one well, self contained, hydraulic pumping installation for a pumping system of the type having a downwell pump which utilizes produced water, oil, or a mixture of oil and water, as the power fluid for pumping well fluids. The pumping installation comprises a power fluid conditioning unit to condition produced water, oil, or a mixture of oil and water, which is always under pressure above atmosphere, from the produced well fluids and exhausted power fluid so that it will be suitable for use as power fluid. Briefly, the produced well fluids and exhausted power fluid from the well, which include oil, gas and water, enters a pressurized, separator-accumulator tank where water is separated from the oil and gas by gravity separation. Water, oil, or a mixture of oil and water, from the pressurized tank is then forced into the inlet of at least one cyclone separator, wherein solids are separated therefrom. The conditioned fluid discharged from the cyclone separator then proceeds into the suction manifold of a pressure pump, wherein, if necessary, appropriate chemicals are injected into the suction of the pressure pump by a chemical pump and high pressure conditioned fluid is discharged from the power fluid outlet of the pressure pump and down the well to operate a sub-surface production unit, such as a downwell hydraulic pump.

No Disclosure of Displacement Pump through which Multi-Phase Mixture is Pumped

Applicants submit that Palmour does not disclose using a displacement pump through which the multi-phase mixture is pumped, as recited in claim 16. That is, Applicants submit that the power fluid of Palmour, which is pumped through the power driven pump means 28 (which the Examiner identified as the recited displacement pump) is not a multi-phase mixture.

Rather, Applicants submit that Palmour explicitly discloses the pumping fluid is water, oil, or a mixture of oil and water. Further, Applicants submit that water, oil, or a mixture of oil and water is a single-phase mixture. That is, the pumping fluid of Palmour is a liquid phase at the power driven pump means 28 (which the Examiner identified as the recited displacement pump).

Additionally, Applicants note that Palmour explicitly discloses removing any solids from the circulating flow of pumping fluid using a cyclone separator 26 and discloses removing any gas from the circulating flow of pumping fluid using a gas eliminator 31. As such, Applicants respectfully submit that any solids and gases are removed from the pumping fluid prior to (or upstream of) arriving at the Examiner-designated displacement pump 28, thus leaving only a liquid remaining as the pumping fluid.

Thus, for at least these reasons, Applicants respectfully submit that Palmour does not disclose using a displacement pump through which the multi-phase mixture is pumped, as recited in claim 16.

No Disclosure of Splitting Off Partial Liquid Flow From Main Delivery Flow and Guiding Split Partial Liquid Flow to High-Pressure Side of Ejector Pump

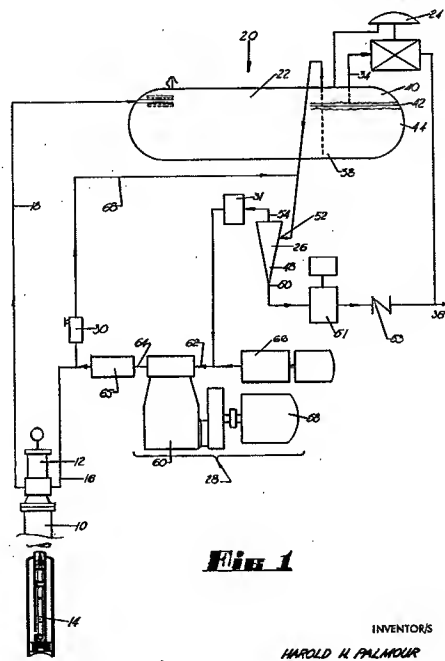
Applicants submit that Palmour does not disclose splitting off a partial liquid flow from a main delivery flow and guiding the split partial liquid flow to a high-pressure side of at least one ejector pump. That is, as discussed above, Applicants submit that the pumping fluid of Palmour is a single-phase fluid (either water, oil or a mixture thereof). As such, Applicants respectfully submit that Palmour does not disclose splitting off a partial liquid flow from a main delivery flow and guiding the split partial liquid flow to a high-pressure side of at least one ejector pump, as the flow leaving the Examiner-designated displacement pump is a completely liquid flow. That is, as discussed above, the pumping fluid of Palmour consists of water, oil or a mixture thereof, any of which are a liquid. Moreover, as noted above, Palmour explicitly discloses that any solids and gases are removed from the pumping fluid, thus leaving only a liquid remaining as the pumping fluid.

In view of the above, Applicants submit that Palmour does not disclose splitting off a partial liquid flow from a main delivery flow, as any flow leaving the Examiner-designated displacement pump is completely liquid. As such, Applicants submit that the completely liquid flow of Palmour cannot reasonably be characterized as the recited partial liquid flow. Moreover, Applicants submit that Palmour does not disclose guiding the split partial liquid flow to a high-pressure side of at least one ejector pump, as any flow leaving the Examiner-designated displacement pump and guided to the Examiner-designated ejector pump is completely liquid.

Thus, for at least these reasons, Applicants submit that Palmour does not disclose splitting off a partial liquid flow from a main delivery flow and guiding the split partial liquid flow to a high-pressure side of at least one ejector pump, and does not anticipate claim 16.

No Disclosure of Ejector Pump Arranged on Suction Side of Displacement Pump

Applicants submit that Palmour does not disclose at least one ejector pump arranged on a suction side of the displacement pump. Applicants have reproduced Figure 1 of Palmour below.



As discussed above, in rejecting claim 16, the Examiner designated the power driven pump means 28 as the recited displacement pump and the downwell pump 14 as the recited ejector pump.

However, as shown in Figure 1, Applicants submit that Palmour does not disclose at least one ejector pump arranged on a suction side of the displacement pump. Rather, Applicants respectfully submit that the Examiner-designated ejector pump 14 is located on a suction side of the separation tank 11. Moreover, as shown in Figure 1, Applicants submit that the gas eliminator 31 is on the suction side of the Examiner-designated ejector pump. Thus, Applicants respectfully submit that Palmour does not disclose at least one ejector pump arranged on a suction side of the displacement pump, and does not anticipate claim 16.

Therefore, for at least these reasons, Applicants respectfully submit that Palmour does not disclose each of the features of claim 16, and does not anticipate the present invention.

Dependent claim 17 over Palmour

Claim 17 is a dependent claim, depending from a distinguishable base claim. Accordingly, this claim should also be in condition for allowance at least based upon its dependency.

Accordingly, for these reasons, Applicants respectfully request the rejection of claims 16 and 17 over Palmour be withdrawn.

35 U.S.C. §103 Rejections

Claims 18, 20, 22, 23, 25, 26 and 28 – 30 were rejected under 35 U.S.C. §103(a) for being unpatentable over Palmour. Claims 19 and 24 were rejected under 35 U.S.C. §103(a) for being unpatentable over Palmour in view of U.S. Patent No. 4,066,123 issued to Skinner (“Skinner”). Claims 21 and 27 were rejected under 35 U.S.C. §103(a) for being unpatentable over Palmour in view of U.S. Patent No. 6,260,627 issued to Rivas (“Rivas”). Claim 28 was rejected under 35 U.S.C. §103(a) for being unpatentable over Palmour in view of U.S. Patent Publication No. 2005/0000689 to Peleanu et al. (“Peleanu”). Applicants respectfully traverse these rejections.

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness. See MPEP §2142. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or

motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.¹ Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Applicants submit that the combination of references do not teach or suggest each of the claim features of the instant invention. Additionally, with regard to claim 22, Applicants submit that it would not have been obvious to modify Palmour in the manner asserted by the Examiner.

Independent claim 22 over Palmour

Independent claim 22 recites, in pertinent part:

. . . a displacement pump for delivering multi-phase mixtures with a pump housing in which a pressure chamber is provided,
 at least one separation device is provided within the displacement pump housing to divide a gas phase from a liquid phase in the pressure chamber,
 a suction line configured to discharge into a well, and
 a feed line connecting the pressure chamber of the displacement pump with a high-pressure side of at least one ejector pump arranged on a suction side in a delivery direction of the displacement pump and which guides the separated liquid phase to the ejector pump.

¹ While the *KSR* court rejected a rigid application of the teaching, suggestion, or motivation (“TSM”) test in an obviousness inquiry, the [Supreme] Court acknowledged the importance of identifying “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does” in an obviousness determination. *Takeda Chemical Industries, Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356-1357 (Fed. Cir. 2007) (quoting *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1731 (2007)).
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In addressing claim 22, the Examiner asserts that Palmour teaches or suggests all of the features of the present invention, except for “the separator and the pump being contained within the same housing.” Additionally, the Examiner asserts that Palmour teaches a separator 31, but acknowledges that Palmour does not teach or suggest the separator 31 and the pump 28 being contained within the same housing. More specifically, the Examiner asserts that Palmour teaches:

. . . a displacement pump (28) for delivering multiphase mixtures, a suction line (16) configured to discharge into a well, and a feed line connecting the pressure chamber of the displacement pump with a high-pressure side of at least one ejector pump (14) arranged on a suction side in a delivery direction of the displacement pump and which guides the separated liquid phase to the ejector pump.

However, the Examiner asserts “it would have been considered obvious to one of ordinary skill in the art, to have made the separation unit integral with the pump, since it has been held that forming in one piece article which has formerly been formed in two pieces and put together involves only routine skill in the art.” Applicants respectfully disagree with the Examiner’s assertion that Palmour teaches or suggests the features of the present invention (except for “the separator and the pump being contained within the same housing”). For example, Applicants submit that Palmour does not teach or suggest: 1) a displacement pump for delivering multiphase mixtures; and 2) at least one ejector pump arranged on a suction side in a delivery direction of the displacement pump. Additionally, Applicants respectfully disagree with the Examiner’s assertion that it would have been obvious to combine the separator and pump of Palmour within the same housing.

No Teaching or Suggestion of Displacement Pump for Delivering Multiphase Mixtures

Applicants submit that Palmour does not teach or suggest a displacement pump for delivering multiphase mixtures. That is, as discussed above, the pumping fluid of Palmour is not a multiphase mixture, but rather, a single phase mixture consisting of water, oil or a combination of both. As such, Applicants respectfully submit that Palmour does not teach or suggest a displacement pump for delivering multiphase mixtures, and does not render claim 22 unpatentable.

No Teaching or Suggestion of Ejector Pump Arranged on a Suction Side in a Delivery Direction of the Displacement Pump

Applicants submit that Palmour does not teach or suggest at least one ejector pump arranged on a suction side in a delivery direction of the displacement pump. That is, for the reasons discussed above, with regard to claim 16, Applicants respectfully submit that the Examiner-designated ejector pump 14 is not located on a suction side in a delivery direction of the Examiner-designated displacement pump 28. Rather, as shown in Figure 1, Applicants respectfully submit that the Examiner-designated ejector pump 14 is located on a suction side of the separation tank 11. Moreover, as shown in Figure 1, Applicants submit that the gas eliminator 31 is on the suction side of the Examiner-designated ejector pump.

Thus, Applicants respectfully submit that Palmour does not teach or suggest at least one ejector pump arranged on a suction side in a delivery direction of the displacement pump, and does not render claim 22 unpatentable.

Not Obvious to Modify Palmour in Manner Asserted by Examiner

Applicants note that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Further, Applicants note that if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Additionally, Applicants note that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Applicants submit that the Examiner-proposed modification of Palmour would render Palmour unsatisfactory for its intended purpose. More specifically, Applicants submit that incorporating the gas separator 31 into the power driven pump means 28 would render Palmour unsatisfactory for its intended purpose. Palmour discusses a chemical discharging means 66 at column 5, lines 23 – 29, which states:

It should also be noted that it is extremely desirable to treat the clean, high pressure power fluid so that it will acquire lubricating, non-corrosive and other desired power fluid qualities. Accordingly, means 66, such as a chemical pump, may be provided for discharging desired chemicals into the suction manifold 62 of the pump 60.

Additionally, as shown in Figure 1, reproduced above, the gas separator 31 is located upstream of the power driven pump means 28, and also upstream of the chemical discharging means 66 for discharging chemicals into the power driven pump means 28. As such, were Palmour to be

modified as the Examiner proposes, the gas separator 31 would be located downstream of the chemical discharging means 66.

Applicants submit that this Examiner-modified arrangement of Palmour would then result in an adding of chemicals to the pumping fluid before a separation of gases from the pumping fluid, which is contrary to Palmour's disclosure of separating out the solids and gases from the pumping fluid prior to the addition of chemicals. Moreover, Applicants submit that the addition of chemicals prior to the separation of gases from the pumping fluid would increase the difficulty of separating the gases from the pumping fluid.

As such, Applicants respectfully submit that the Examiner-proposed modification of Palmour would render Palmour unsatisfactory for its intended purpose. Accordingly, Applicants respectfully submit that there is no suggestion or motivation to make the proposed modification.

Additionally, Applicants submit that the Examiner-proposed modification of Palmour would change the principle of operation of Palmour. That is, as explained above, the Examiner-proposed modification of Palmour requires that chemicals be added to the pumping fluid prior to a separation of the gases in the pumping fluid, which is contrary to Palmour's disclosure of separating out the solids and gases from the pumping fluid prior to the addition of chemicals.

As such, Applicants submit that the Examiner-proposed modification of Palmour would change the principle of operation of Palmour. Accordingly, Applicants respectfully submit that the teachings of the references are not sufficient to render the claims *prima facie* obvious.

Thus, for at least these reasons, Applicants respectfully submit that Palmour does not render claim 22 unpatentable.

Dependent claims 18, 20, 23, 25, 26 and 28 – 30 over Palmour

Claims 18, 20, 23, 25, 26 and 28 – 30 are dependent claims, depending from respective distinguishable base claims. Accordingly, these claims should also be in condition for allowance at least based upon their respective dependencies.

Claim 18

Additionally, Applicants submit that Palmour does not render obvious the features of claim 18. Claim 18 recites in pertinent part:

. . . carrying out a separation of a gas phase and a liquid phase in the displacement pump, wherein the partial liquid flow to the ejector pump is split off from the separated liquid phase.

In addressing claim 18, the Examiner states that “Palmour teaches separating the gas and liquid phases in a separator (31), but the separator is not integral with the pump (28).” However, the Examiner asserts that it would have been obvious to make the separator integral with the pump. For the reasons set forth above, with regard to claim 22, Applicants submit that it would not have been obvious for one ordinarily skilled in the art to modify Palmour as the Examiner proposed. That is, Applicants submit that the Examiner-proposed modification of Palmour would render Palmour unsatisfactory for its intended purpose and would change the principle of operation of Palmour.

Thus, Applicants submit that Palmour does not render unpatentable the features of claim 18.

Claims 20 and 25

Additionally, Applicants submit that Palmour does not teach or suggest each of the features of claims 20 and 25. Claim 20 recites, in pertinent part:

. . . after the partial liquid flow has been split off, guiding the split off partial liquid flow through an additional separator for dividing a gas phase from a liquid phase.

Additionally, claim 25 recites, in pertinent part:

. . .an additional separator arranged in the feed line for dividing the liquid phase from the gas phase.

In rejecting claims 20 and 25, the Examiner states that “Palmour discloses an additional separator (26).” Applicants respectfully disagree.

With regard to claim 20, while acknowledging that Palmour discloses a cyclone separator 26, Applicants submit that Palmour does not teach or suggest “after the partial liquid flow has been split off, guiding the split off partial liquid flow through an additional separator for dividing a gas phase from a liquid phase.” More specifically, Applicants submit that “the partial liquid flow” as defined in claim 16 is split off from a main delivery flow and guided to a high-pressure side of at least one ejector pump. Due to the Examiner’s treatment of claim 16, from which claim 20 depends, Applicants submit that the only flow that could be arguably considered the partial liquid flow (which Applicants do not concede) is along path 16 from the Examiner-designated displacement pump 28 to the Examiner-designated ejector pump 14.

However, as shown in Figure 1, the cyclone separator 26 is not located along this path 16 between the Examiner-designated displacement pump 28 to the Examiner-designated ejector pump 14. Rather, the cyclone separator 26 is located upstream of the Examiner-designated displacement pump 28.

Furthermore, Applicants submit that Palmour explicitly teaches that the cyclone separator 26 separates solids and liquids. More specifically, Palmour teaches at column 2, lines 26 – 29 that:

Water, oil, or a mixture of oil and water, from the pressurized tank is then forced into the inlet of at least one cyclone separator, wherein solids are separated therefrom.

As such, Applicants submit that Palmour does not teach or suggest an additional separator for dividing a gas phase from a liquid phase.

Thus, for at least these reasons, Applicants submit that Palmour does not teach or suggest each of the features of claim 20, and does not render the present invention unpatentable. Moreover, as discussed further below, Applicants respectfully submit that the Examiner did not address each of the recited features of claim 20. As such, Applicants submit that the Examiner has not set for a clear record or a complete action.

With regard to claim 25, Applicants submit that Palmour does not teach or suggest an additional separator arranged in the feed line for dividing the liquid phase from the gas phase. That is, in treating claim 22, from which claim 25 depends, the Examiner never specifically identified the recited feed line. However, Applicants submit that the only line between the Examiner-designated displacement pump 28 and the Examiner-designated ejector pump 14 is line 16.

In view of the above, Applicants submit that Palmour does not teach or suggest an additional separator arranged in the feed line. That is, the cyclone separator is not located in the line 16, but rather, is located upstream of the Examiner-designated displacement pump 28.

Moreover, as discussed above with regard to claim 20, Applicants submit that the cyclone separator 26 is not structured for dividing the liquid phase from the gas phase. Rather,

Applicants submit that the cyclone separator 26 is structured and arranged for separating solids and liquids.

Thus, for at least these reasons, Applicants submit that Palmour does not teach or suggest each of the features of claim 25, and does not render the present invention unpatentable. Moreover, as discussed further below, Applicants respectfully submit that the Examiner did not address each of the recited features of claim 25. As such, Applicants submit that the Examiner has not set for a clear record or a complete action.

Claim 26

Additionally, Applicants submit that Palmour does not teach or suggest each of the features of claim 26. Claim 26 recites in pertinent part:

. . . a return line leading from the additional separator to a pressure line of the displacement pump.

In addressing claim 26, the Examiner states “Palmour disclose a return line (68).”

Applicants disagree.

While acknowledging that Palmour discloses a bypass line 68, Applicants submit that Palmour does not disclose a return line leading from the additional separator to a pressure line of the displacement pump, as recited in claim 26. Palmour describes the bypass line 68 at column 5, lines 42 – 50, which states:

Suitable by-pass means 68 communicate between valve means 30 and the inlet 52 of the cyclone separator 26. The valve means 30 controls the speed of the downwell pump 14 by passing back to the inlet 52 of the cyclone separator 26 a quantity of clean fluid, the amount of the fluid being by-passed controlling the amount of fluid sent to the well 10 so as to maintain the desired strokes per minute on the downwell pump 14.

Thus, Applicants submit that the bypass line 68 directs a portion of pumping fluid from just downstream of the Examiner-designated displacement pump 28 back to the inlet of the cyclone separator 26. In other words, Palmour discloses a return line leading from a pressure line of the Examiner-designated displacement pump to a line connected to the Examiner-designated additional separator.

As such, Applicants submit that Palmour does not teach or suggest a return line leading from the additional separator to a pressure line of the displacement pump, as recited in claim 26, and does not render the present invention unpatentable.

Moreover, as discussed further below, Applicants respectfully submit that the Examiner did not address each of the recited features of claim 26. As such, Applicants submit that the Examiner has not set for a clear record or a complete action.

Accordingly, for at least these reasons, Applicants respectfully request the rejection of claims 18, 20, 22, 23, 25, 26 and 28 – 30 over Palmour be withdrawn.

Dependent Claims 19 and 24 over Palmour in view of Skinner

Claims 19 and 24 are dependent claims, depending from respective distinguishable base claims. Accordingly, these claims should also be in condition for allowance at least based upon their respective dependencies.

Additionally, Applicants submit that Palmour in view of Skinner does not teach or suggest each of the features of claims 19 and 24. Claim 19 recites, in pertinent part:

. . . feeding a partial volume flow of the separated liquid phase in a portioned manner to a suction side of the displacement pump via a short-circuited line.

Claim 24 recites, in pertinent part:

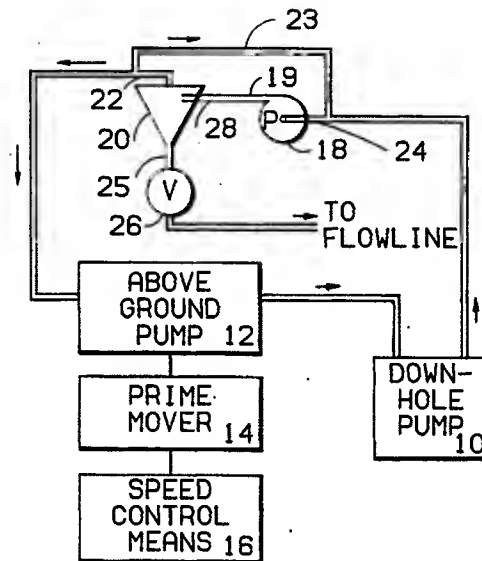
. . . a short-circuited line leading from a pressure-chamber side to the suction side of the displacement pump for portioned feeding of the separated liquid phase.

In addressing claims 19 and 24, the Examiner states that Palmour fails to disclose a short-circuited line for recirculating fluid through the displacement pump unit, but asserts “Skinner discloses a pump/separator system (18, 20) for well production having a short circuited line (23).” Additionally, the Examiner asserts that it would have been considered obvious “to have included the short-circuited line within the pump/separator system of Palmour, in order to have ‘improve[d] cleaning of the fluid’ (see Skinner column 2, line 19).” Applicants respectfully disagree.

Initially, Applicants note that the Examiner did not address each of the features of claims 19 and 24. As such, as discussed further below, Applicants submit that the Examiner has not set for a clear record or a complete action.

Furthermore, Applicants submit that Palmour in view of Skinner does not teach or suggest each of the features of claims 19 and 24. For example, with regard to claim 19, Applicants submit that Palmour in view of Skinner does not teach or suggest “feeding a partial volume flow of the separated liquid phase in a portioned manner to a suction side of the displacement pump via a short-circuited line.” Additionally, with regard to claim 24, Applicants submit that Palmour in view of Skinner does not teach or suggest “a short-circuited line leading from a pressure-chamber side to the suction side of the displacement pump.”

Skinner discloses a hydraulic pumping unit with a variable speed triplex pump. Applicants have reproduced Figure 1 of Skinner below.



As shown in Figure 1, Applicants submit that the above ground pump 12 corresponds with the recited displacement pump of the instant invention and the down-hole pump 10 corresponds with the recited ejector pump of the instant invention.

With this in mind, Applicants submit that Palmour in view of Skinner does not teach or suggest feeding a partial volume flow of the separated liquid phase in a portioned manner to a suction side of the displacement pump via a short-circuited line, as recited in claim 19. That is, the Examiner-identified short circuited line 23 at least is not arranged to feed a suction side of the displacement pump, which Applicants submit corresponds to the above ground pump 12. Rather, as shown in Figure 1, the Examiner-identified short circuited line 23 directs flow from an outlet of the cyclone separator to an inlet of the cyclone feed pump 18.

Additionally, claim 16, from which claim 19 depends, defines the partial volume flow as between the outlet of the displacement pump and the inlet of the ejector pump. As such, Applicants submit that Palmour in view of Skinner does not teach or suggest feeding a partial volume flow of the separated liquid phase . . . via a short-circuited line. That is, the inlet of the Examiner-identified short circuited line 23 is not located between the outlet of the displacement

pump (i.e., above ground pump 12) and the inlet of the ejector pump (i.e., above downhole pump 10), and thus the Examiner-identified short circuited line 23 is not arranged to feed the recited partial volume flow of the separated liquid phase.

Thus, Applicants submit that Palmour in view of Skinner does not teach or suggest each of the features of claim 19.

Additionally, Applicants submit that Palmour in view of Skinner does not teach or suggest a short-circuited line leading from a pressure-chamber side to the suction side of the displacement pump, as recited in claim 24. That is, as discussed above, the Examiner-identified short circuited line 23 directs flow from an outlet of the cyclone separator to an inlet of the cyclone feed pump 18. As such, Applicants submit that Palmour in view of Skinner does not teach or suggest a short-circuited line leading from a pressure-chamber side to the suction side of the displacement pump, which Applicants submit corresponds to the above ground pump 12 of Skinner.

Thus, Applicants submit that Palmour in view of Skinner does not teach or suggest each of the features of claim 24.

Accordingly, for at least these reasons, Applicants respectfully request the rejection of claims 19 and 24 be withdrawn.

Dependent Claims 21 and 27 over Palmour in view of Rivas

Claims 21 and 27 are dependent claims, depending from respective distinguishable base claims. Accordingly, these claims should also be in condition for allowance at least based upon their respective dependencies.

Additionally, Applicants submit that Rivas does not cure the deficiencies of Palmour. Applicants note that the Examiner did not assert that Rivas teaches or suggests any of the features of independent claims 16 and 22 (from which claims 21 and 27 depend, respectively), merely relying on Rivas' teaching of a booster pump.

Accordingly, Applicants respectfully request the rejection of claims 21 and 27 be withdrawn.

Dependent Claim 28 over Palmour in view of Peleanu

Claim 28 is a dependent claim, depending from a distinguishable base claim. Accordingly, this claim should also be in condition for allowance at least based upon its dependency.

Additionally, Applicants submit that Peleanu does not cure the deficiencies of Palmour. Applicants note that the Examiner did not assert that Peleanu teaches or suggests any of the features of independent claim 22 (from which claim 28 depends), merely relying on Peleanu's purported teaching of the interchangeability of the plunger pump of Palmour and a screw pump.

Accordingly, Applicants respectfully request the rejection of claim 28 be withdrawn.

Complete Action Not Provided

Applicants respectfully submit that the Examiner did not provide a complete action, and as such, Applicants submit that the next action should not be a final action. The Examiner is reminded of the guidance provided by 37 C.F.R. § 1.104(a)(1) regarding the Nature of Examination (emphasis added):

On taking up an application for examination . . . the examiner shall make a thorough study thereof and shall make a thorough investigation of the

available prior art relating to the subject matter of the claimed invention. The examination shall be complete with respect to both compliance of the application . . . with the applicable statutes and rules and to the patentability of the invention as claimed, as well as with respect to matters of form, unless otherwise indicated.

Applicants submit that, as discussed above, each of the features of claims 19, 20, 24, 25 and 26 were not properly treated as claimed.

Thus, for at least these reasons, Applicants submit that a clear record was not provided and a clear issue was not developed between Applicants and the Examiner.

More specifically, MPEP §706 states:

Before final rejection is in order a clear issue should be developed between the examiner and applicant. To bring the prosecution to as speedy conclusion as possible and at the same time to deal justly by both the applicant and the public, the invention as disclosed and claimed should be thoroughly searched in the first action and the references fully applied; and in reply to this action the applicant should amend with a view to avoiding all the grounds of rejection and objection.

Additionally, MPEP 706.07(a) notes:

Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p). . . .

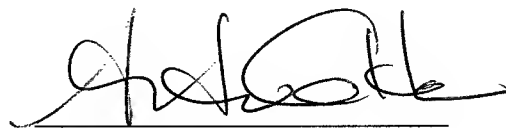
Furthermore, a second or any subsequent action on the merits in any application . . . will not be made final if it includes a rejection, on newly cited art, other than information submitted in an information disclosure statement filed under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17 (p), of any claim not amended by applicant or patent owner in spite of the fact that other claims may have been amended to require newly cited art.

Accordingly, Applicants respectfully request that the Examiner clarify the record by treating claims 19, 20, 24, 25 and 26 as claimed. Moreover, Applicants respectfully submit that the next action, which should clarify the record, cannot be a final action.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicants hereby make a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 19-0089.

Respectfully submitted,
Jens Uwe BRANDT et al.

A handwritten signature in black ink, appearing to read 'Andrew M. Calderon', written over a horizontal line.

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